3. On the Pygmy Hippopotamus of Liberia, *Hippopotamus liberiensis* (Morton)[1], and its claims to distinct Generic Rank. By W. H. Flower, C.B., LL.D., F.R.S.

[Received November 15, 1887.]

The Zoological Department of the British Museum has lately acquired a complete skeleton and skin of a fully adult Pygmy Hippopotamus. This animal has been separated generically from *Hippopotamus* by Leidy[2], under the name of *Chœropsis*; and Leidy's view has been adopted by Alphonse Milne-Edwards[3] (who has given a very careful description of the whole skeleton), by Gratiolet[4], and by others[5]. The two points of generic distinction insisted on are:—I. The absence of the outer pair of lower incisors which are found in *Hippopotamus amphibius*. II. The very different proportions and relations of the parts of the cranium.

It is admitted that in all other structural characters the two forms are closely allied.

I. With reference to the dentition, we may recall the division which was made long ago by Dr. Falconer[6] of all the then known species of Hippopotamus living and extinct into two subgenera, *Hexaprotodon* and *Tetraprotodon*, according as they had three or two incisors on each side of the jaw. The former term was afterwards raised to generic rank by Owen[7], the old generic name *Hippopotamus* being retained for *Tetraprotodon*. Accepting this distinction as a valid one, it was logical on the part of Leidy, on the discovery of a form with only one incisor in the lower jaw, to separate it also generically.

In his revision of the group, Mr. Lydekker does not accept these divisions as generic, remarking that "the case of *H. palæindicus*, which in its lower jaw is really a *Hexaprotodon* in process of conversion into a *Tetraprotodon*, coupled with the instance of unilateral hexaprotodontism in *H. amphibius*, indicates that Dr. Falconer's two subgenera should be abolished. This point being admitted, there are but slight grounds for retaining the subgenus or genus *Chœropsis*, and accordingly all the species of Hippopotamus may be referred to a single genus"[1].

---

[1] *Hippopotamus minor*, Morton, Proc. Acad. Nat. Sciences Philadelphia, 1844, p. 14. Name withdrawn, as preoccupied, in favour of *H. liberiensis*, Morton, Journ. Acad. Nat. Sc. Philad. 2nd ser. vol i. p. 232 (1849).

[2] *Chœrodes* (Proc. Acad. Nat. Sc. Phil. vi. p. 52), withdrawn, as preoccupied, in favour of *Chœropsis* (Journal Acad. Nat. Sc. Philad. 2nd ser. ii. p. 213, 1853).

[3] Recherches pour servir à l'histoire naturelle des Mammifères: Paris, 1868, p. 77.

[4] Recherches sur l'Anatomie de l'Hippopotame: Paris 1867. Apparently unaware of Leidy's generic name, Gratiolet proposed that of *Ditomeodon* (p. 202).

[5] Macalister, "The Anatomy of *Chœropsis liberiensis*," Proc. R. Irish Academy, 2nd ser. i. p. 494 (1873). The existing literature of this interesting species is completed by reference to a description and figure of the sternum (which was absent in the skeleton described by Milne-Edwards) by Peters, Monatsbericht Ak. Berlin, 1873, p. 445.

[6] Falconer and Cautley, Asiatic Researches, xix. pt. i. p. 51 (1836).

[7] Odontography, p. 566 (1840–45).

The new specimen affords an interesting corroboration of this opinion. In the front of the lower jaw are the two usual incisors; but on the right side is an additional smaller tooth placed between the normal incisor (*i.* 1) and the canine, and which evidently corresponds with the smaller outer incisor of *H. amphibius* (*i.* 3, according to Lydekker's determination). This tooth is procumbent (though rather less so than the contiguous incisor). It has a cylindrical root, and (as in the opposing outer incisor of the upper jaw) a portion of the enamel-covered crown remains, the greater part being worn obliquely away. Its diameter is 7 millimetres, that of the first incisor being 12. There is no corresponding tooth on the left side.

The remaining dentition of the Pygmy species is essentially that of *Hippopotamus,* although undoubtedly differences in detail can be pointed out. The most striking of these are the larger development and greater persistence of the first premolar, the smaller relative size of the fourth upper premolar, and the greater simplicity of the form of the crowns of the true molars. Whether these characters are of sufficient importance for generic distinction is a point to be decided according to the view taken of the advisability or otherwise of multiplying such distinctions.

With regard to the cranial differences, so strongly insisted upon by Leidy, Milne-Edwards, and Gratiolet, striking as they are on superficial observation, they all depend upon one circumstance, the greater relative size of the brain-cavity and capsules of the sense-organs (orbits and auditory bullæ) in *H. liberiensis,* contrasted with the huge development of the masticating organs, and ridges for the attachment of muscles to move the jaws, in *H. amphibius.* Apart from this the crania are essentially similar, even the remarkable thin-walled capsule formed by the lachrymal bone in the floor of the orbit, well known in the common species, is present, though on a smaller scale, in the Liberian animal. Now it is rather remarkable that these differential characters have been pointed out with great emphasis by the three eminent anatomists mentioned above, without any indication of the circumstances that they are just those characters by which, in any natural group, the small members differ from the large, and just those in which in any species the young differ from the adult. The universal law of the arrest of growth of the nervous system and sense-organs in the large members of homogeneous groups fully accounts for all the differences of the two skulls which have been pointed out with such minuteness. Exactly similar differences are found between the Tiger and the smaller species of *Felis,* the Gorilla and Baboons and the smaller allied Apes, the large and small members of the genus *Otaria,* and in fact wherever there is great diversity in size in closely related forms and even in individuals of the same species. A pygmy Hippopotamus which should present all the exact proportions of the large form as regards these parts of its organization, would be as great an anomaly as a dwarf or a child with the proportions of a full-sized adult. All these distinctions therefore, instead of indicating diversity, are rather conclusive evidence of affinity, unless size itself is to be considered as a worthy ground of generic distinction.

---

[1] Palæontologia Indica, ser. 10, vol. iii. p. 47.

After all a generic name is purely a matter of convenience, and for my part I think it more desirable and instructive to call the Liberian species *Hippopotamus*, and thereby to indicate its close relationship with the well-known large animal of that name, than to give it a designation in which this affinity is lost sight of. It may be sometimes expedient to divide up genera in which the number of species are excessive upon comparatively trivial characters; but in the case of *Hippopotamus*, with only two living and but few extinct species, no such reason can be alleged.

4. On a new Genus and Species of Australian Mugilidæ. By J. DOUGLAS-OGILBY, Department of Fishes, Austr. Mus. Sydney. (Communicated by F. DAY, C.I.E., F.Z.S.)

[Received November 1, 1887.]

TRACHYSTOMA, gen. nov.

Branchiostegals six; pseudobranchiæ present. No adipose eyelids. Vomer and palate furnished with distinct bands of villiform teeth; jaws toothless. Scales rather small, finely ctenoid.

TRACHYSTOMA MULTIDENS, sp. nov.

B. vi. D. $4\frac{1}{8}$. A. 3/9. V. 1/5. P. 15. C. 14.
L. lat. 48–51. L. tr. 16.

Length of head $5\frac{1}{3}$ to $5\frac{1}{2}$, of caudal fin $4\frac{3}{4}$ to $5\frac{1}{3}$, height of body $4\frac{8}{9}$ to 5 in the total length. *Eye* without adipose lids, the diameter of each $4\frac{1}{7}$ to $4\frac{1}{3}$ in the length of the head, $1\frac{1}{5}$ to $1\frac{1}{3}$ diameters from the end of the snout, and $1\frac{4}{5}$ diameters apart. Interorbital space convex; snout broad and depressed; upper lip not thickened. Angle made by the anterior edges of the mandibles moderately obtuse; the length of one of the mandibular rami is $\frac{2}{3}$, or slightly more, of the width of the gape of the mouth. The maxilla reaches backwards to the vertical from the hinder margin of the posterior nostril. Preorbital serrated along its outer edge. Nostrils nearer to the eye than to the end of the snout; the anterior nearly circular, small; the posterior oval, large, about five times the size of the anterior. The free space on the chin is of moderate size and lanceolate. *Teeth*: a patch of villiform teeth on the vomer, sometimes crescentic, sometimes biclavate; palate with an elongate band, broadest anteriorly. *Fins*: Spinous dorsal commences rather nearer to the base of the caudal than to the tip of the snout; its spines are strong, the first the longest, about two thirds of the length of the head; the interspace between the two dorsal fins is rather less than the base of the spinous dorsal, while the distance between the origins of the two dorsals exactly equals the length of the head,